



WHITE PAPER

Four Key Trends Impacting Mobile Infrastructure Strategy

Sponsored by: IBM Global Technology Services

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IDC OPINION

An enterprise mobility solution that is made up of a combination of hardware, software, and services is expansive, providing competitive, productivity, and profitability advantages for enterprises that have the capability to successfully deploy a well-conceived and well-executed mobile strategy. Growth in the mobility hardware, software, and service markets speaks to how organizations are prioritizing mobility. Strategically aligning technologies and services to leverage as a foundation upon which to build a mobile strategy requires insight and guidance. IDC sees the following trends impacting the development of successful mobility infrastructure strategies and deployment models:

- The proliferation of smart connected devices (laptops, tablets, and smartphones) coupled with the Internet of Things (IoT) will only continue to expand, impacting enterprise infrastructure.
- The desire to consume anything (applications or resources) from any device anywhere is driving lines of business and end users to procure IT outside of the purview of centralized IT, increasing risks to the business and creating "shadow IT" or silos of technology.
- A tighter intermingling of social business and analytics allows enterprises to make better and more informed business decisions.
- Expansive WLAN growth provides enterprises with a consistent wireless experience, but with the expansion come infrastructure and security concerns.

IN THIS WHITE PAPER

This white paper analyzes the key building blocks required to deploy a mobile enterprise infrastructure solution. The discussion focuses on the professional consulting and integration services designed to support a mobile enterprise infrastructure strategic initiative. This white paper provides insight into the key trends and challenges for deploying a mobile solution in today's enterprise organization. The document also reviews key IBM Global Technology Services offerings in this space.

SITUATION OVERVIEW

Mobility Infrastructure Services Market Overview and Dynamics

IDC's research shows that we are at the beginning of what IDC terms a *hyperdisruption* – a once every 20- to 25-year shift to a new technology platform for growth and innovation. This disruption is built on mobile devices and applications, cloud services, mobile broadband networks, Big Data analytics, and social technologies. This represents the "3rd Platform" of information and communication technologies (ICTs), where hundreds of thousands of applications are in play, and billions of devices are connected to the network. This follows on the 1st Platform (mainframe terminal) and the 2nd Platform (client/server and the Internet). In 2014, 3rd Platform technologies and solutions will drive 29% of spending and 89% of all IT spending growth. By 2020, almost 50% of all IT spending and 100% growth will come from 3rd Platform technologies. This means that an enterprise IT organization has to confront waves of technology change on many fronts, encompassing the increasing connectedness of devices, including laptops, smartphones, tablets, wearables, and devices operating without human interaction, as in the Internet of Things market.

Mobility initiatives will continue to be a top priority for executives as they work to develop a strategy that supports enterprisewide adoption. Many enterprises in vertical segments such as retail, banking, and healthcare have developed comprehensive mobile strategies that have become key sources of competitive differentiation. However, companies that have not yet developed a mobile enterprise strategy run the risk of missing opportunities to create sustainable competitive advantage, drive business innovation, develop new and creative revenue streams, and deliver a high-quality experience for their customers.

The aggressive push toward mobility will challenge IT organizations to rethink and transform core technologies, skill sets, and business process to effectively make the transition to a mobile enterprise. The transformation to a mobile enterprise can be defined as how an organization evolves its existing IT infrastructures (hardware, software, and applications), business processes, and security policies to enable a mobile-centric engagement for employees, customers, and partners. It is important to understand how trends, such as smart device proliferation, expanding shadow IT deployments, social business and analytics, and the explosive growth of the WLAN, will impact the successful deployment of a mobility initiative. It is even more critical to leverage best practices and develop a concise, comprehensive strategy prior to embarking on any initiative this complex in order to fully understand the potential opportunities and risks. IDC believes that third-party services will be essential to help align business priorities, establish clarity, and define strategy as well as expertly deploy technology for success.

Four Key Trends Impacting Enterprise Mobile Strategy Development

Rapid Growth of Smart Connected Devices and the Internet of Things

According to IDC, the market will see a rapid expansion of smart connected devices (which IDC defines as laptops, tablets, and smartphones) led by sales of smartphones (growing at a CAGR of 30% through 2017) and tablets with projected growth of 13% in 2014 (down from 2013's aggressive 23% growth). This will be a global trend, as the number of smart connected devices shipping to emerging markets will be almost double the number shipped in mature regions. The continued growth

of these devices will have a greater impact on the IT market at large and will significantly impact overall industry growth compared with other IT markets, such as server (1.6% in 2014 versus 3.5% in 2013), storage (2.6% in 2014 versus 0% in 2013), networking (7% in 2014 versus 6.1% in 2013), and services (3.9% in 2014 versus 3.2% in 2013). We have surpassed the 1 billion smart devices shipped demarcation point with no turning back or slowing down.

In addition to the major impacts on the IT market from growth in smart connected devices, major impacts are already being seen from the burgeoning Internet of Things market globally. The IoT is defined as a network of networks of uniquely identifiable endpoints (or "things") that communicate without human interaction using IP connectivity – whether "locally" or globally. The IoT characterized by the ability for automated management, monitoring, and analytics is already spurring new business processes and innovative offers. IDC expects the worldwide market for IoT solutions to grow at a 20% CAGR from \$1.9 trillion in 2013 to \$7.1 trillion in 2020.

The blending of consumer and corporate identities will also create control challenges for IT managers as the number of end user-owned and end user-liable devices quickly surpasses that of corporate-liable devices at over 2:1 (175 million BYOD versus 69 million company owned). The consumerization of IT has created an environment where mobile users are dictating the terms of how they will use mobile technology. These users can access corporate resources from any locations, use a variety of mobile devices (smartphones, tablets, laptops), and install their own applications. While this level of freedom has created positive benefits in terms of employee productivity, by streamlining workflows and increasing real-time collaboration, there are also dangers, such as exposing the enterprise to new risks from non-vetted applications, or lack of insight into how a new technology can affect underlying policies and network architecture. These users come into the enterprise with certain expectations based on how they use their devices and applications for their personal productivity and will be reliant upon the enterprise to deliver that same high level of experience.

Mobile Initiatives Will Be Led by Line of Business Increasing "Shadow IT"

The rapid growth of smart connected devices (either company or employee owned) provides an easily accessible on-ramp for end users to procure applications and resources from the cloud. This has expanded the sphere of buyers and influencers of IT, in many cases, without the knowledge or support of IT, creating silos of technology or "shadow IT." This inherently poses challenges for IT on many levels, such as cost control, security, and compliance, as well alignment with business goals and objectives. For example, the CMO may choose to purchase a social business application directly from the cloud to drive the ability for increased customer intimacy, all outside of the purview of IT, but the impact on the IT infrastructure and risk to the business may well outweigh the productivity benefit. According to a recent IDC study, 30% of enterprise respondents stated that mobile application initiatives were funded and led by the business unit, while just 15% of enterprise respondents stated that mobile application initiatives were funded and led by IT. In addition, only 29% of enterprise respondents indicated that mobile application initiatives received joint funding. Enterprises estimate that roughly 18% of IT spend is transacted by line of business and that 16% of IT's time is spent managing and resolving problems generated by non-IT-sanctioned projects.

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The immediate reaction of IT to this trend is typically an attempt to regain control of the environment through strict adherence to corporate mandates. However, IDC believes that IT should evaluate mobile more carefully and look at the positive benefits that can be gained internally and externally through a deep understanding of current mobility technology trends and user behavior.

Social Business and Analytics

The drive for customer intimacy is an essential component for competitive organizations. Social applications and business tools help enterprises respond to their customers more proactively and even preemptively leverage analytics and information generated at a breakneck pace from mobile devices. Understanding and prioritizing these interactions will only increase in importance, and the ability to leverage this information will be a competitive differentiator for the enterprise. By 2017, 80% of Fortune 500 companies will have an active customer community, up from 30% today. Understanding the impact that mobility will have on the customer experience as social communities rise in adoption will require insight and strategy. IDC believes third-party services firms provide the requisite holistic view to make this important link because they have insight into their clients' business and technology environments, opportunities, and challenges.

Consistent Wired and Wireless Experience

All of these dynamics will be underpinned by a growing and dynamic IT infrastructure to support the business. Key to any deployment or consumption model is the ability to develop and implement a sound IT infrastructure to support the mobile initiative. The core network/IT infrastructure will need to be expertly designed to support increased requirements for secure access and mobile policies, application workloads, and greater volume and velocity of data traversing both the enterprise and datacenter networks, as well as to provide a ubiquitous wireless experience. This is illustrated by IDC's forecast of WLAN for 1Q14 posting y/y growth of 10.3% in the enterprise sector and will continue to be fueled by the adoption of newer technologies to provide a faster and more seamless connection to mobile applications. IDC forecasts continued growth of WLAN equipment at a CAGR of 14.6% to \$7.5 billion by 2017.

Market Drivers and Business Opportunities for Enterprise Customers

Mobility provides the opportunity for increased productivity, profitability, and competitive advantages, but more interestingly, it opens the door for innovation, enhanced customer experience, increased customer loyalty, and the ability to build new monetization opportunities. IDC sees verticals such as retail, banking, hospitality, and healthcare leveraging mobility in creative ways, with other verticals such as automotive, industrial, education, and logistics beginning to adopt at a brisk pace.

In retail, the ability to leverage location-based services (LBS) provides customers entering into a retail store environment with context-based communications, including relevant coupons and promotional or loyalty types of offers. This capability can be interlinked with analytics to understand traffic and browsing patterns to help enhance the overall customer experience. In healthcare, the ability to have better device and patient tracking in large healthcare venues or for patients at home improves patient care quality and the ability to have complete round-the-clock observation and care. And in hospitality, the ability to provide context-based communications to suggest dining and recreational activities can enhance a vacationer's experience and bolster revenue streams at venues throughout a resort. These opportunities are foundationally based on a solid mobile infrastructure, coupled with strong analytics to

provide faster and more actionable information to the organization. Along with these innovative opportunities come concerns about security as well as policy creation and enforcement in customer-focused enterprises where networks serve both external customers and internal business applications.

Leveraging Professional Services for Mobility Infrastructure Strategy and Alignment

As enterprises undertake or expand mobile deployments, they will need to get their arms around which deployment choices and which suppliers work best for them. Most enterprises will not be able to keep pace, nor will they have the technology, staffing, and processes in place or the ability to capitalize on mobile assets to deploy and optimize a mobile strategy to its full potential. As a result, IDC believes that the need for external IT services that can help enterprises plan, build, integrate, and manage their mobility initiatives will grow in importance.

Enterprise mobility is transformative in nature and as such requires a clear and comprehensive strategy that takes into account the business goals of a mobility initiative as well as all of the necessary IT components, business processes, and management strategies needed to enable a corporate wide mobile strategy. IDC recommends that enterprises leverage the expertise of an external services firm that utilizes a proven transformation methodology through a life-cycle approach of plan, build, and run/manage to meet the enterprises where they enter the adoption curve of mobility.

An IT services firm will assist organizations in assessing their current capabilities and evaluate the barriers to reaching higher levels of mobility adoption along with the realization of true business benefits. IDC believes that leveraging a services firm that has the deep technical expertise across the broad spectrum of mobile hardware and software, as well as the keen understanding of how to intimately link these technologies into the business processes of the organization, will be critical.

More importantly, a services firm can illustrate, through a defined and repeatable methodology, the migration from the "as is" state to the new "to be state," encompassing the requisite planning, design, implementation, optimization, and operations services and the equally important adoption and training services, to ensure risk is minimized and business benefits are realized during the transformation to a mobile enterprise. This services approach allows enterprises to more quickly capitalize on benefits, such as faster time to market, better evaluation and integration of emerging technologies, reduced risk to the existing infrastructure and processes, and increased end-user productivity and adoption.

IDC believes that enterprises should consider the following factors when evaluating an IT services provider:

- Globally consistent and secure
- Support legacy as well as new infrastructure
- Support multiple vendors and provide seamless interoperability
- Guarantee IT infrastructure performance (network, storage, compute, and applications)
- Improve the quality of experience for both enterprise customers and internal users
- Increase productivity and efficiency

The preceding list provides a guideline to help enterprises select the right services firm to help deliver a successful mobile infrastructure. Equally important for enterprises is the need to develop criteria for the selection of a services firm that has the capability to expand and think through new opportunities and develop strategies for innovation surrounding mobility.

IDC believes the following criteria are essential for the enterprise to expand into new opportunities:

- The IT services firm should be able to tap into a wide variety of internal and external resources and intellectual property to provide the best possible outcome. Services organizations that can leverage IP throughout the enterprise can expand the breadth of opportunity. A firm that can deliver professional services, hardware, and software capabilities is best positioned to provide this guidance.
- The IT services firm should have the ability to develop new business opportunities, revenue models, and competitive advantage. Services organizations with well-defined business and technology consulting skills have a holistic view of the business. The firm should also be able to illustrate best practices and thought leadership to create strategy and a road map for enterprises to realize new revenue streams, business models, and unique competitive differentiation.

Most enterprise IT organizations do not possess the capability to deliver mobility solutions or the capability to develop new models leveraging mobility on their own. IDC expects that companies looking to speed the development of their mobile initiatives will continue to seek external services.

Creating a Checklist for a Successful Mobility Infrastructure Development and Deployment

A mobile initiative can be unwieldy for most enterprises as they work to align business requirements with the appropriate mix of established and emerging technologies; various consumption models; hardware, software, and services; and build out of skill sets to support a mobile environment. IDC believes that services firms, particularly those with established mobility practices, can provide the essential guidance to enterprise customers to help create alignment within the organization for increased adoption and execution of an enterprisewide mobility strategy. IDC sees the following essential components for a mobility project checklist (see Figure 1).

FIGURE 1

Create a Checklist for Successful Mobility Infrastructure Deployment



Source: IDC, 2014

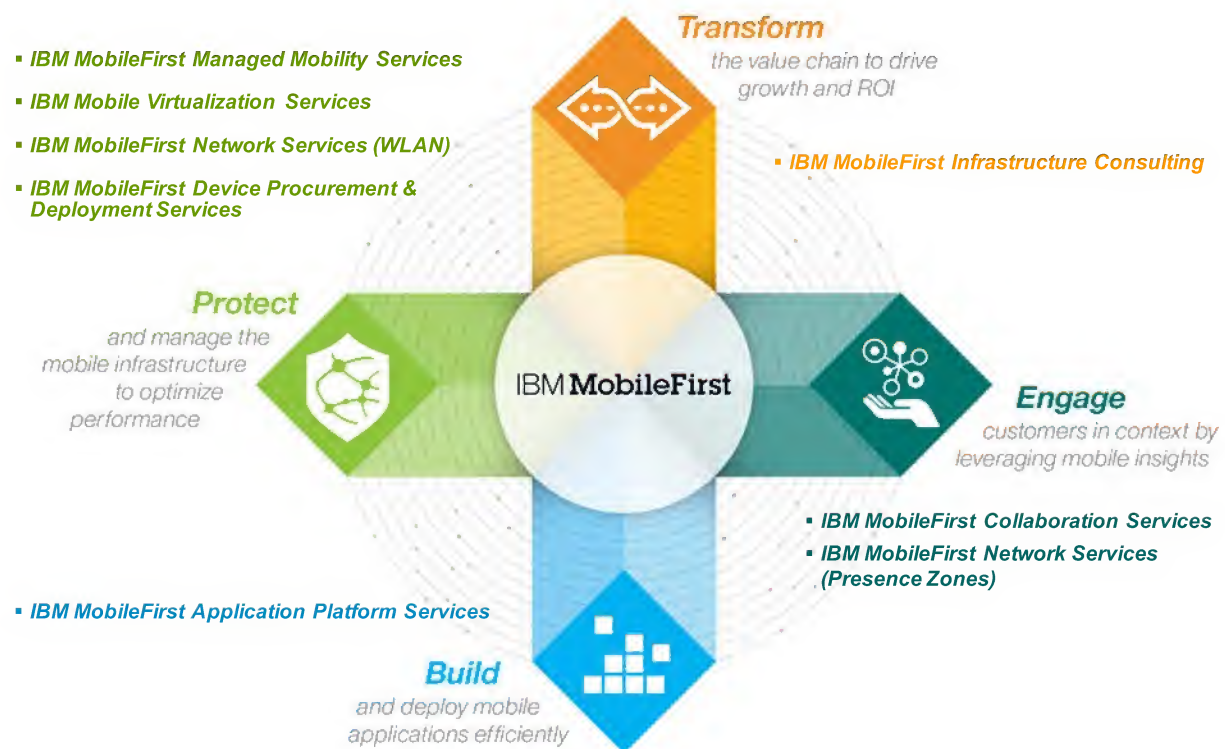
IBM Mobile Enterprise Infrastructure Services – MobileFirst

IBM Global Technology Services' MobileFirst practice provides guidance, strategy, and integration services to help enterprise customers create new ways of transacting business and new business models to realize a mobility solution's full potential. The MobileFirst suite of services helps customers

develop mobile strategies, prioritize investments, leverage infrastructures, and take advantage of mobile application development for new revenue streams, transformational business processes, and innovative business models. MobileFirst offers a full suite of services to meet customers wherever they are in their mobile journey and can continue to reengage with them once an objective is completed. The services follow IBM's life-cycle approach of transform, engage, build, and protect to help clients fully realize the potential of mobile (see Figure 2).

FIGURE 2

IBM Mobility Services Portfolio



Source: IDC, 2014

IBM's Life-Cycle Approach

Transform the Value Chain to Drive Growth

Mobile has to start with a business opportunity, and in many cases, these business opportunities are leading to industry disruption. IBM strategy and design services for mobile are utilized to help enterprise customers develop a comprehensive and holistic strategy to align mobile initiatives with business goals to transform the enterprise into a mobile-first organization. The consulting services are geared to help enterprises strategize and prioritize mobile initiatives that will deliver maximum benefit to the business while architecting the infrastructure to be poised for future growth opportunities in the

new mobile environment. Included in this service is the capability to evaluate the current state of the infrastructure and provide a gap analysis and strategic road map to reach the desired "to be" state. A business case and a strategic action plan are developed for the mobile initiative.

- **MobileFirst Infrastructure Consulting** helps clients develop an industry-specific road map for a holistic mobility infrastructure strategy, which encompasses transform, engage, build, and protect inclusive of networks, devices, and platforms. A starting point to the mobile engagement is the MobileFirst Journey Workshop.

Engage Customers in Context by Leveraging Mobile Insights

One of the near universal business opportunities that mobile presents is to deepen customer engagement. Mobile is ubiquitous. And people are using their devices in ways that can be turned to advantage for the enterprise:

- **MobileFirst Collaboration Services.** Development of a unified communications mobile strategy by incorporating email, voice, video, and data on any device, anywhere
- **MobileFirst Network Services.** Architecting and optimization of network infrastructure to engage a customer in any location such as IBM Presence Zones in retail venues

According to IBM, 71% of smartphone users who see a captivating TV advertisement will immediately do a mobile search. But mobile users are discerning – 61% of customers who visit a mobile unfriendly site are likely to go to a competitor's site. CMOs recognize this problem. 57% of customers say that designing experiences for tablet/mobile apps is a key priority to drive customer loyalty. Leaders are not only providing better, more differentiated service to their end customers but also enabling their employees with mobile so that they can provide faster and better service wherever they are.

Build and Deploy Applications Efficiently

Providing a high-level mobile experience generally starts with an engaging application or mobile Web experience. Mobile app development brings with it a host of unique challenges. Organizations struggle with faster development cycles, an increasing number and variety of devices to support, various and evolving development approaches, management, security and life-cycle concerns, and the capability to leverage back-end data into new front-end technologies.

- **IBM MobileFirst Application Platform Services.** A fully managed service for rapid deployment and configuration of a single mobile application platform to build, manage, and integrate cross-platform applications

Protect and Manage the Mobile Infrastructure to Optimize Performance

The infrastructure supporting mobile contains many components that organizations need to protect and manage, whether networking, security, device management, application management, or expense management. All of these elements need to be planned for, integrated, and optimized so that the enterprise and its workforce can take advantage of new mobile opportunities. These services are designed to enable and manage the secure transaction of business using mobility. This suite of services also includes the exploration and development of new collaborative business models and processes; procurement, deployment, and support of wireless infrastructure; and ongoing consulting leveraging the analytics gleaned from data in the new mobile environment. This intelligence opens

opportunities to explore innovative revenue streams and business models expanding upon the mobile infrastructure to gain competitive advantage:

- **MobileFirst Managed Mobility Services.** Implementation and management services to provide scalable, secure, reliable, and flexible management of mobile infrastructures, endpoints, enterprise app store, and telecom expense management
- **Mobile Virtualization Services.** Enabling endpoints (traditional and mobile) to access platform-independent hosted apps and full client images using virtualization technologies
- **MobileFirst Network Services.** Securely design and optimize WLANs and deploy new technologies like geolocation-based services
- **MobileFirst Device Procurement and Deployment Services.** A life-cycle service for procurement, staging, packaging, distribution, and management of mobile devices

The IBM MobileFirst services suite is designed to help clients transform, engage, build, and protect their IT investments within their organizations to develop new business models, revenue opportunities, and new ways of conducting business. These services leverage IBM's full complement of skills, hardware, software, partners, and processes. The services can be coupled with the mobile intellectual capital of MobileFirst, which is delivered as a comprehensive suite of professional services to help enterprise customers realize the full potential of their mobility initiative.

IBM MOBILEFIRST CASE STUDIES

Fashion Institute of Design & Merchandising

The Fashion Institute of Design & Merchandising (FIDM) is a private college based in Los Angeles, with three additional campuses located in Orange County, San Francisco, and San Diego. The FIDM IT infrastructure supports 7,500 students, 500 faculty, and course content for 20 creative majors, with a focus on fashion and graphic design and digital media.

FIDM was faced with an end-of-life wireless infrastructure and the need to provide a more consistent and expansive wireless experience throughout the campus for its students, faculty, staff, and visiting guests. The existing wireless infrastructure provided access only in common areas, such as the library, on a limited basis. Given the desire to provide a ubiquitous campuswide wired and wireless experience for students, guests, and faculty, FIDM examined its wireless strategy. FIDM's objectives and parameters were very specific:

- Provide wall-to-wall wireless connectivity in four campus locations
- Create policies, governance, management, and security to support a continually revolving student body and students' BYOD devices
- Assess, optimize, and integrate existing and new wireless infrastructure
- Deploy the solution within the parameters of FIDM's academic calendar, allowing for two-week installation periods to be completed over a four-year period
- Contain costs and stay within a fixed budget (Funding is provided by student tuition with no outside capital resources available.)

FIDM had worked successfully with IBM on previous hardware and software integration projects and chose to work with IBM once again for its wireless project. IBM initiated the engagement with IBM MobileFirst Infrastructure Consulting Services to provide a detailed assessment and used IBM MobileFirst Network Services for the creation of an overlay of a wireless map of the campus and developed a heat map, illustrating existing wireless coverage and new coverage areas. IBM provided a list of vetted wireless equipment vendors, and collaboratively, FIDM and IBM, chose Aruba for the wireless equipment and access points. Together, IBM and Aruba worked with FIDM network operations to design and integrate the new equipment with the existing infrastructure, avoiding any costly rip-and-replace projects. The project had to utilize existing staff and resources for management, monitoring, and security, so IBM worked to automate processes and increase functionality to help eliminate the need for additional staffing cost. And importantly, the project had to be expertly timed to coincide with FIDM's unique semester scheduling requirements and be fully operational at the start of the new term. This gave the team a two-week window, between terms, to complete the integration and testing for the successful deployment.

Once the wireless infrastructure was in place, the team began to design guest account access to provide a "hotel type" registration and authentication approach (given that the student body changes each term) that met the requirements for security policies to ensure secure network access. Further, the team developed a model for student BYOD access. In the old model, students checked out laptops from a central library, limiting access and creating a bottleneck for students to complete work and research. The new BYOD model allows students to bring their own laptops and mobile devices, which greatly increases students' productivity and creates a cost savings for the school as it no longer needs to support an inventory of laptops. This new model also created new authentication challenges. Using the IBM WebSphere portal, together with Aruba at the IBM Innovation Center, the team developed a new student interface to onboard mobile devices. This collaboration addressed authentication, network architecture, and BYOD requirements.

The project is at the midpoint in the four-year journey, and IBM continues to provide project management and support as well as the capability for working across other divisions of IBM to provide a full solution, including partnering with other suppliers. FIDM would like to explore new ways to leverage its wireless infrastructure investment to enhance students' mobile experience. This may include leveraging its investment in Rational Application Developer for WebSphere to create new mobile apps like Meridian for indoor positioning for mobile apps, develop new security capabilities, and even examine new wireless 802.11ac infrastructure for future buildouts. Because of the unique installation requirements of FIDM, the two-week deployment windows allowed the team to examine lessons learned and apply that learning to the next phase of the deployment, thereby creating an even better user experience with each new deployment phase. According to FIDM CIO Roxanne Reynolds-Lair, "It came down to partnership, collaboration, and people for success and fun."

Kochi Medical School Hospital

Kochi Medical School Hospital is designated as an advanced treatment hospital, located in Nankoku City, Kochi Prefecture, Japan. The hospital plays a central role in the delivery of regional medical services, maintains 19 clinical departments and 605 patient beds, and handles an average of 1,100 outpatients daily. The hospital employs 1,300 people. In addition, Kochi Medical School Hospital is connected to the medical facility of Kochi University, providing medical services to Kochi University as well as educating healthcare professionals.

The hospital was challenged by having a very mobile workforce, which must visit patients throughout the university campus daily. To access patient records, the personnel had to log in to a new terminal with every client visitation. The log-ins were time consuming and cumbersome, slowing productivity and providing a less-than-optimal patient experience. In addition, the mobile nature of the staff required many practitioners to access sensitive patient information from various terminals and, in some cases, even transport confidential information on memory sticks, thereby exposing the hospital to a broad spectrum of security and compliance risks. Further, the current desktop client assets were aging, incurring increased support and maintenance costs, downtime, and reduced productivity. As a result, the hospital elected to deploy a virtual desktop infrastructure (VDI) solution to target three key pain points – increase staff productivity and ease of use, increase patient data security, and lower operational costs for desktop management and maintenance of client terminals.

The hospital had been considering VDI since 2010 and began testing the solution in collaboration with IBM Japan. Initially, 50 servers were virtualized for VDI, and the migration of internal applications was tested and verified. While the two firms discovered initial difficulties in rolling out the solution within certain departmental systems, the benefits achieved in terms of application performance and operational efficiencies demonstrated a solid case to move forward with a large-scale rollout by 2013. Today, the hospital has deployed 600 new thin-client terminals and 360 Windows-based PCs throughout the campus. In addition, IBM designed an innovative approach for nurse workstations leveraging iPod touch units instead of dedicated and antiquated PHS terminals with old barcode readers. The initial cost of the new solution was low, and campuswide distribution was economical and efficient to execute. Applications can seamlessly be added to the iPod for new feature sets. Kochi Medical School Hospital is the first deployment of this solution for a medical institution in Japan.

Kochi Medical School Hospital utilized two key services from IBM: IBM Mobile Virtualization Services and IBM MobileFirst Managed Mobility Services. IBM Mobile Virtualization Services enabled secure access to confidential medical information and dramatically enhanced the medical staff's ability to quickly access patient records by significantly reducing log-in times. Upgrading desktops and utilizing the iPod touch systems also helped reduced workstation downtime and operational costs.

IBM MobileFirst Managed Mobility Services provided end-to-end life-cycle support, including mobile terminal management for continuous security and governance of smart devices, installation and development of new solutions for the devices, as well as an operation service desk to ensure rapid resolution times for any problems. These services help provide support for secure mobile device usage.

As a result of the engagement with IBM Japan, the hospital has seen three key improvements:

- Reduced log-in times, down from five minutes to less than one minute, thereby greatly improving patient record access for all employees
- Increased security of confidential patient information with the elimination of memory sticks (Virtual clients now allow access to shared files via network storage, creating a secure data exchange environment.)
- Significant reduction of maintenance and operational costs of the old client environment

Kochi Medical School Hospital selected IBM Japan for its extensive experience in managing the transition to a mobile virtualized desktop for healthcare, as the unique nature of the business requires deep industry knowledge and defined best practices.

Libbs Pharmaceutical

Established in 1958 and located in São Paulo, Brazil, Libbs Pharmaceutical is a developer of oncology medical solutions. The company has three business units: Libbs Farmaceutica, Libbs Oncologia, and Libbs Farmoquimica. Libbs develops partnerships with other Brazilian and multinational companies for licensing and co-marketing of its unique, patented products, which are distributed and resold domestically. Libbs Pharmaceutical supports 2,400 employees and generates revenue of R\$1.1 billion (US\$490 million).

In 2010, Libbs was ready to make the change from costly paper catalogues to a digital format using tablets. This move would allow for more detailed illustration of the product line on an easily updatable mobile platform. Competing pharmaceutical companies had already undertaken this journey, and it was essential that Libbs increase its competitive and innovation edge. Moving to a mobile catalogue would also enable updating the field sales force more efficiently using a standardized method. Libbs' own IT department undertook the challenge for the development, deployment, and management of the devices and content of the initial launch.

After successfully releasing the program to its field sales team, Libbs discovered that maintenance and support costs were too high, so the company issued an RFP, and IBM Global Technology Services was selected as the winner. The goal of the project was to lower support, maintenance, and IT operational costs of using the mobile solution as well as to help Libbs cost effectively procure equipment (tablets) for the continued rollout of the program.

Libbs leveraged IBM MobileFirst services that provided for a full life-cycle approach for procurement, staging, distribution, and management of all of Libbs mobile devices throughout Brazil. IBM was selected for its ability to provide a low-cost solution for procurement and support. As a result of working with IBM, Libbs realized cost reductions of 30% in maintenance and operational fees, and it has streamlined its processes for enabling field sales personnel with a tablet-based mobile catalogue to improve efficiencies for sales. This will be an ongoing journey for Libbs and IBM as they continue to expand upon the possibilities for mobile.

FUTURE OUTLOOK

Mobility has become pervasive, and given the pace of evolution, the applicability for driving enterprise value is far reaching. Mobile solutions are being implemented across a variety of industries – such as healthcare, retail, and banking – to drive a range of benefits from operational efficiency to a higher level of customer value.

However, the conversation around mobile cannot be static. Business and customer requirements will change over time, technologies will continue to evolve, and new technologies will emerge. Given the pace of mobile adoption, one thing is clear: Future changes will occur at a rapid rate.

Therefore, mobile strategies must evolve and be reevaluated to ensure alignment with current and future market requirements. As a result, IDC believes that organizations pursuing a mobile strategy must partner with companies that offer broad mobile expertise, possess thought leadership on the direction of the mobile market, and understand how mobile technologies can be employed to drive innovation across the organization.

The importance of mobility will only amplify for customers as they desire and require faster access to corporate data on a larger number and variety of devices anywhere. The importance of mobility will only be accelerated as we embrace the Internet of Things. As these demands increase, enterprises will continue to wrestle with security challenges, controlling communications expenses, and BYOD, as well as striving to keep up with various lines of business and their consumption demands via cloud and an ever-broadening number of IT providers. Added to this complexity will be the ever-increasing impact of social business and the importance of analytics. Irrespective of the deployment model, complex scenarios will need to be vetted, and decisions will need to be made on the many interrelated components of the solution, including software, hardware, and services that could be provided by any number of suppliers.

Regardless of where an organization enters and/or continually reenters the mobility discussion, establishing best practices for successful deployment and adoption of any mobility initiative is essential:

- Establish strategies and policies
- Integrate mobility enterprisewide
- Optimize IT infrastructure for secure access and performance
- Manage the mobile environment for security and efficiency

As today's organizations begin to look at mobility as a key strategic initiative rather than a "nice to have," services will play a critical role in enabling the IT foundation for the business to move ahead with creating new and better experiences for end customers, partners, and employees.

CHALLENGES/OPPORTUNITIES

In deploying a mobile solution, IBM will face the following challenges and opportunities:

Challenges

- **Helping customers prioritize and set a strategy on where to start.** Where to enter the mobility conversation can be overwhelming, and the proliferation of new technologies, consumption models, and innovation can be staggering for most enterprises. IBM can guide customers through this journey by leveraging IBM professional services expertise, specifically strategy and planning services to create alignment of business objectives with technology requirements.
- Expanding the mobile discussion into broader functional areas of an enterprise, such as customer service, marketing, and operations, that are critical for maximizing the value of mobility. IBM must extend its mobility message to a broader constituency within the enterprise, coordinating the activities of various internal stakeholders around a common vision of mobility. Among the key value propositions for justifying the investment in an enterprise mobility initiative

are increased productivity and efficiency. Achieving these benefits can be very difficult to quantify, and the time frame to realize these benefits can be equally difficult to ascertain.

- Rationalizing and prioritizing a large selection of suppliers and deployment approaches (on-premise, cloud, managed services, hybrid) and building the right cost benefit model to address each scenario and use case. IBM has the advantage of strong technology partner relationships as well as the wherewithal to provide a full portfolio of consumption models to meet client capex and opex needs.
- Recognizing the application and use case for new technologies, trends, and designs, as well as management and support decisions. The ability to provide full end-to-end strategy, design, implementation, integration, optimization, and support – a full life-cycle approach globally – supporting both technology and business is a unique differentiator for IBM.

Opportunities

- IBM has the ability to leverage technologies (IT infrastructure, software, and delivery models), along with professional services acumen pan-IBM, providing customers with scale and expertise globally, irrespective of where a client enters the mobility life cycle.
- IBM has the ability to assess processes, people, and technologies when embarking on a mobility discussion with its customers. This provides more insight into the business and the ability to increase innovation, lower operational costs, and drive new revenue streams and business models that leverage mobility.
- IBM's thought leadership in mobility and its deep industry knowledge will enable the company to work closely with enterprises to create strategies for driving innovation into the organization and establishing a sustainable source of competitive differentiation.
- Given the volume and range of data that will be generated by machine-to-machine solutions, customer interactions, partner interactions, and internal employees, advanced analytics applied to this data will create a constant data feed that can produce valuable insight to constituencies across the organization.

CONCLUSION

Enterprise mobility solutions provide competitive, productivity, and profitability advantages for enterprises that have the capability to successfully deploy a well-conceived and well-executed mobile strategy. Strategically aligning technologies and services to leverage as a foundation upon which to build a mobile strategy requires insight and guidance.

Mobility will challenge IT organizations to rethink and transform core technologies, skill sets, and business processes to effectively transition to and adopt a mobile solution. It is important to understand how trends, such as smart device proliferation and IoT, expanding shadow IT deployments, social business and analytics, and the explosive growth of the WLAN, will impact the successful deployment of a mobility initiative. It is even more critical to develop a concise, comprehensive strategy for the mobile initiative to fully understand the potential opportunities, challenges, and risks involved in embarking on this journey. IDC believes that third-party services will be essential to help align business priorities, establish clarity, and define strategy as well as expertly deploy technology for success.

Regardless of where an organization enters and/or continually reenters the mobility discussion, establishing best practices for successful deployment and adoption of any mobility initiative is essential. A professional services firm is best positioned to deliver the guidance that enterprises require for successful deployment of a mobility solution. IDC recommends that enterprises vet their partners carefully, even developing a review rubric or checklist to help guide them through the evaluation process. Metrics should include the ability to deliver a full breadth of technology, geographic, service, and vendor capabilities; the ability to innovate, develop, and implement new business opportunities or revenue streams leveraging hardware, software, and services and offering a full portfolio of professional services including the requisite consulting, integration, security, governance, and management of the solutions; and the ability to provide various consumption models for capex and opex financial models.

As today's organizations begin to look at mobility as a key strategic initiative rather than a "nice to have," services will play a critical role in enabling the IT foundation for the business to move ahead with creating new and better experiences for end customers, partners, and employees.

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